

IN THE CLAIMS

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Please cancel claims 2-3, 8, 28 and 37-38 without prejudice or disclaimer.

Please substitute the following amended claims for the corresponding original claims. A marked copy of the claim amendments is attached hereto.

1. (twice amended) A method of treating a chamber to at least partially remove residue from surfaces in the chamber, the method comprising:
- (a) transferring a substrate into the chamber and electrostatically holding the substrate on an electrostatic chuck;
 - (a) providing an energized first process gas comprising one or more of CF_4 , SF_6 and NF_3 in the chamber to treat the surfaces in the chamber; and
 - (b) providing an energized second process gas in the chamber to further treat the surfaces in the chamber and to assist in de-chucking the substrate from the electrostatic chuck, the second process gas being different than the first process gas.

2. (amended) A method according to claim 1 wherein the treating of the chamber comprises cleaning a surface of a wall in the chamber.

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7. (amended) A method of etching a substrate comprising a metal silicide containing layer and a polysilicon containing layer in a chamber and cleaning etchant residue formed on surfaces in the chamber, the method comprising the steps of:

(a) placing the substrate comprising the metal silicide and polysilicon containing layers in the chamber;

(b) in a first stage, providing an energized first process gas in the chamber to etch through the metal silicide containing layer, the first process gas comprising a substrate etching gas and a first cleaning gas comprising a fluorinated gas;

(c) in a second stage conducted after (b), providing a second energized process gas in the chamber to etch through the polysilicon containing layer; and

(d) in a third stage conducted after (c), providing an energized second cleaning gas in the chamber that is different from the first cleaning gas.

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12. (amended) A method according to claim 7 wherein the substrate etching gas comprises a gas capable of etching a tungsten silicide layer on the substrate.

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16. (amended) A method according to claim 7 wherein in step (a), the substrate is electrostatically held on an electrostatic chuck in the chamber, and in step (d) comprises providing an electronegative plasma of second cleaning gas.

17. (amended) A method according to claim 7 wherein in the third stage, the chamber pressure is maintained at from about 1 mTorr to about 10mTorr.

18. (amended) A method according to claim 7 wherein in the third

stage, the ratio of source power to bias power is from about 5:3 to about 40:1.

19. (amended) A method of etching a substrate in a chamber and cleaning etchant residue from surfaces in the chamber, the method comprising the steps of:

- (a) placing the substrate in the chamber;
- (b) etching a first material on the substrate thereby depositing a first etchant residue on the surfaces in the chamber;
- (c) after (b), etching a second material on the substrate while suppressing deposition of a second etchant residue onto the first etchant residue, the first etchant residue being compositionally different from the second etchant residue; and
- (d) after (c), providing a cleaning gas in the chamber and coupling RF power to energize the cleaning gas to clean the first and second etchant residue deposits formed on the surfaces in the chamber.

22. (amended) A method according to claim 21 wherein the second gas comprises another cleaning gas.

23. (amended) A method according to claim 22 wherein the second gas comprises a fluorinated cleaning gas.

24. (amended) A method according to claim 23 wherein the fluorinated cleaning gas comprises one or more of CF_4 , SF_6 and NF_3 .

25. (amended) A method according to claim 19 wherein, in (d), the cleaning gas comprises an oxygen containing gas.

14 27. (twice amended) A method of etching a substrate comprising a metal silicide containing layer in a chamber and at least partially removing etchant residue from surfaces in the chamber, the method comprising the steps of:

136 (a) electrostatically holding the substrate comprising the metal silicide containing layer in the chamber;

(b) providing a first energized gas comprising a fluorinated gas in the chamber, the first energized gas comprising an etchant gas to etch the metal silicide containing layer on the substrate; and

(c) providing a second gas in the chamber and energizing the second gas by coupling RF power to the second gas to at least partially remove etchant residue from the surfaces in the chamber and simultaneously remove residual charge accumulated in the substrate.

137 29. (amended) A method according to claim 27 wherein the fluorinated gas comprises one or more of CF_4 , SF_6 and NF_3 .

138 32. (amended) A method according to claim 27 wherein the etchant gas comprises a gas capable of etching a tungsten silicide layer on the substrate.

139 33. (amended) A method according to claim 27 wherein the etchant gas comprises one or more of Cl_2 , N_2 , O_2 , HBr and He-O_2 .

140 34. (amended) A method according to claim 27 wherein the fluorinated gas comprises a fluorinated cleaning gas, and wherein a volumetric flow ratio of etchant gas to fluorinated cleaning gas is from about 1:1 to about 20:1.

141 35. (amended) A method of etching a substrate in a chamber and cleaning residue that forms on surfaces in the chamber, the method comprising the

47. (twice amended) A method of etching a substrate in a chamber and at least partially removing etchant residue from surfaces in the chamber, the method comprising:

- (a) supporting the substrate comprising in the chamber, the substrate having a metal silicide containing layer thereon;
- (b) providing an energized gas in the chamber to etch through the metal silicide containing layer, the energized gas comprising a fluorinated gas;
- (c) after (b), providing an energized gas consisting essentially of O_2 in the chamber to at least partially remove etchant residue from the surfaces in the chamber; and
- (d) after (c), removing the substrate from the chamber.

34 48. (amended) A method according to claim 33 wherein (b) comprises providing an energized gas comprising an etchant gas comprising one or more of Cl_2 , N_2 , O_2 , HBr , and $He-O_2$.

35 49. (amended) A method according to claim 33 wherein (b) comprises providing a fluorinated gas comprising one or more of CF_4 , SF_6 , and NF_3 .

steps of:

- (a) placing the substrate in the chamber and electrostatically holding the substrate on an electrostatic chuck;
- (b) in an etching stage, etching one or more materials on the substrate using energized gas, at least one composition of the energized gas including an etching gas comprising one or more of Cl_2 , N_2 , O_2 , HBr and He-O_2 ; and a residue cleaning gas comprising one or more of CF_4 , SF_6 and NF_3 ; and
- (c) cleaning the residue formed on the surfaces in the chamber and assisting in dechucking the substrate from the electrostatic chuck using another energized gas comprising oxygen.

41. (amended) A method of cleaning a chamber to remove residue from surfaces in the chamber, the chamber having an antenna about the chamber, and the method comprising the steps of:

- (a) providing an energized first process gas in the chamber to clean the surfaces in the chamber; and
- (b) adjusting a chamber source power applied to an antenna about the chamber to control the amount of residue removed from the surfaces.

51. (amended) A method of etching a substrate in a chamber and at least partially removing etchant residue from surfaces in the chamber, the method comprising:

- (a) supporting the substrate in the chamber, the substrate having a first and a second layer thereon;
- (b) providing a first energized gas in the chamber to etch the first layer;
- (c) providing a second energized gas in the chamber to etch the second layer and at least partially remove the etchant residue formed on the surfaces in the chamber in (b); and
- (d) providing an energized cleaning gas to at least partially remove residues formed on surfaces in the chamber in (b) and (c).